

"On the 24th we discover that it has suddenly resumed *the most distant A.M. period*, viz. 10 A.M., but proceeds regularly to the noon period at the change.

"Although the differences of level do not at full and change exceed 1 foot $4\frac{1}{2}$ inches, still I presume that we have sufficient data to establish the fact,—that it is *not invariably high water at noon* (as asserted by Kotzebue, Beechey and others); and, further, that we have corresponding *nightly periods* of high water.

"It is evident that the time of high water at full and change may be assumed as that of noon, because we have sufficiently decided changes of level to fix the approximate period of high water.

"It does not appear by these Registers, that any higher levels result from the rollers sent in by the strong sea breezes (as asserted by several writers), but rather the contrary, the highest levels being indicated during the night, when the land breezes prevailed.

"I have great satisfaction in presenting you with these facts, and trust that they may induce others to follow up the same experiments, so as, eventually, to obtain the variations which other seasons may produce.

"I am, Sir, your most obedient servant,

"EDWARD BELCHER, *Captain.*"

"*Captain Beaufort, R.N., F.R.S., Hydrographer.*"

2. "On Fissiparous Generation:" by Martin Barry, M.D., F.R.S. L. and Ed.

The author observes that the blood-corpuscle and the germinal vesicle resemble one another in the circumstance of an orifice existing in the centre of the parietal nucleus of both. He pursues the analogy still farther, conceiving that as a substance of some sort is introduced into the ovum through its orifice, which the author terms *the point of fecundation*, so the corpuscles of the blood may undergo a sort of fecundation through their corresponding orifice; and also that the blood-corpuscle, like the germinal vesicle, is propagated by self-division of its nucleus; a mode of propagation which he believes to be common to cells in general. The nucleus of the germinal vesicle, or original parent cell of the ovum, gives origin, by self-division, to two young persistent cells, endowed with qualities resulting from the fecundation of the parent cell; these two cells being formed by assimilation, out of a great number of minuter cells which had been previously formed. This account of the process, which takes place in the reproduction of the entire organism, explains, according to Dr. Barry, the mysterious reappearance of the qualities of both parents in the offspring.

Certain nuclei, which the author has delineated in former papers as being contained within and among the fibres of the tissues, he conceives to be, in like manner, centres of assimilation, from observing that they present the same sort of orifice, that they are reproduced by self-division, and that they are derived from the original cells of development; that is, from the nuclei of the corpuscles of the blood. He considers that assimilation of the substance intro-

duced into the parietal nucleus of the cell is part of the process which propagates the cell; that the mode of reproduction of cells is essentially fissiparous, and that the process of assimilation prepares them for being cleft.

A pellucid point is described by the author as being "contained in a certain part of the cell-wall, and as representing the situation of a highly pellucid substance, originally having little if any colour." This substance, which he considers as being primogenital and formative, he denominates *hyaline*, and ascribes to it the following properties. It appropriates to itself new matter, thus becoming enlarged; then divides and subdivides into globules, each of which passes through changes of the same kind. Under certain circumstances, it exhibits a contractile power, and performs the motions called *molecular*. It is the seat of fecundation, and it is by its successive divisions that properties descend from cell to cell, new properties being continually acquired as new influences are applied; but the original constitution of the hyaline not being lost. The main purpose for which cells are formed is to reproduce the hyaline; and this they do by effecting the assimilation which prepares it to divide; such division being thus the essential part of fissiparous generation.

The remaining part of the paper is occupied with a detailed account of these processes as they occur in the development of the ovum, and also in the changes exhibited by the corpuscles of the blood, in which fissiparous reproduction also takes place, and the red blood-disks are converted into fibrin, and thus give origin to the various tissues of the organs. The same theory of fissiparous reproduction he also applies to the formation of the muscular fibre, in connexion with his belief that it is composed of a double spiral filament. Contractile cilia, he supposes, are also formed by the elongation of nuclei, the filaments proceeding from them in opposite directions. The author considers, lastly, the subject of the fissiparous reproduction of the Infusoria, and particularly of the *Volvox globator*, the *Chlamydomonas*, *Baccillaria*, *Gonium*, and the *Monadina* in general; and applies the same theory to gemmiparous reproduction, and to the so-called spontaneous generation of infusoria and parasitic entozoa.

February 23, 1843.

The MARQUIS OF NORTHAMPTON, President, in the
Chair.

James Meadows Rendel, Esq., was balloted for, and duly elected a Fellow of the Society.

The following papers were read, viz.—

1. "Researches on the Decomposition and Disintegration of Phosphatic Vesical Calculi; and on the introduction of Chemical